

AMATEUR RADIO

SEPTEMBER

1950

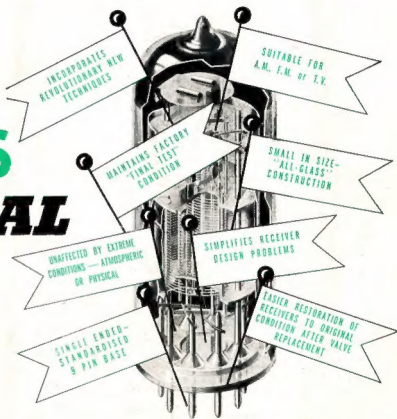
JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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EDITORIAL



Respect the Conditions of Your Licence

Most Amateurs who undertake to operate an experimental station remember the obligations they have agreed to observe under the Commonwealth Regulations, as set out in the Wireless Telegraphy Act.

It is easy to overlook the fact that you signed a Statutory Declaration when you were granted a licence to operate your station. In accordance with the regulations laid down by the Postmaster General's Department, who direct all Amateurs under these provisions, you agreed to observe these regulations in all respects.

You are earnestly recommended to re-read your Handbook for Operators of Amateur Wireless Stations, with a view to refreshing your memory on your responsibilities under the Act

with respect to the maintenance of secrecy of all forms of communications heard by you.

Occasionally we hear some criticism concerning the security aspects of Amateur Radio in the Commonwealth, and suggestions have been made that a Radio Amateur may provide a source of leakage which would have a subversive effect on the security of this country.

If such criticism is well founded—which we very much doubt—we suggest that you carefully consider your activities in the light of the requirements of the Commonwealth Investigation Service, whose responsibility it is to ensure that all licencees are loyal and responsible citizens of the Commonwealth of Australia.

FEDERAL EXECUTIVE

The Contents . . .

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ERRATUM

Heading on Page 5 should read: "100 Watt 144 Mc. Transmitter," not 100 Mc.

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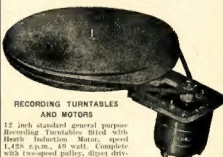
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Characteristics of Indicating Meters

Being Transcript of Lecture Delivered at Urunga Convention, 1950

BY R. H. LONG,* VK2MM, A.M.I.E. (AUST.)

Briefly it should be understood that there is essentially no difference mechanically between a Voltmeter and an Ammeter. The Ammeter is a low resistance-low reading Voltmeter or Millivoltmeter, and the Voltmeter is a low reading-high resistance Ammeter. With this idea in mind we can proceed to a description of the general principles and construction.

It might be advisable at this stage to give some figures as to the order of accuracies of the various types as defined in the British Standard Specification B.S.89 for first grade Meters and a brief explanation of the meaning of these figures.

| | Dynamometer Moving Coil | | Moving Iron Induction | |
|------------|-------------------------|-----|-----------------------|-----|
| | A | B | A | B |
| Voltmeter† | 1.0 | 0.5 | 1.0 | 0.5 |
| Ammeter† | 1.0 | 0.5 | 1.0 | 0.5 |

| | Hot Wire Rectifier Thermocouple | | Electrostatic | |
|------------|---------------------------------|-----|---------------|-----|
| | A | B | A | B |
| Voltmeter† | 3.0 | 1.5 | 2.0 | 1.0 |
| Ammeter† | 3.0 | 1.5 | — | — |

† Single range.

Column "A" shows the permitted error from half scale to full scale expressed as a percentage of the indicated reading.

Column "B" shows the permitted error from zero to half scale expressed as a percentage of the full scale value.

So that taking an 0.1 Ma. moving coil Meter—

A reading of 0.7 can be
 $0.7 \pm 1.0\% \left\{ \begin{matrix} 0.693 \\ 0.707 \end{matrix} \right\} = 1.0\% \text{ error.}$

A reading of 0.2 can be
 $0.2 \pm \frac{1}{2}\% \text{ F.S. } \left\{ \begin{matrix} 0.195 \\ 0.205 \end{matrix} \right\} = 2.5\% \text{ error.}$

A reading of 0.1 can be
 $0.1 \pm \frac{1}{2}\% \text{ F.S. } \left\{ \begin{matrix} 0.095 \\ 0.105 \end{matrix} \right\} = 5.0\% \text{ error.}$

A reading of 0.05 can be
 $0.05 \pm \frac{1}{2}\% \text{ F.S. } \left\{ \begin{matrix} 0.045 \\ 0.055 \end{matrix} \right\} = 10.0\% \text{ error.}$

There are basically five common types of indicating meters, viz.:

- Dynamometer.
- Moving Coil (with accessories) Thermocouples and Rectifiers.
- Moving Iron.
- Electrostatic.
- Hot Wire.

(a) THE DYNAMOMETER

This type of meter is one in which the supply being metered supplies the field in which the moving coil acts. For this reason its use is very limited in radio where the power consumption of the meter generally must be kept to a low value so as not to disturb the circuit conditions.

This type of meter can be used with equal accuracy on d.c. (mean of reversed readings) or a.c. up to approx. 200 cycles and provides a useful comparison between a.c. and d.c.

It is generally restricted to power engineering where its main use is as a substandard.

The range can be extended by the use of Potential Transformers, Resistance Boxes, and Air-cored Current Transformers. The power consumption of a typical range is of the order of 0.5 watts.

(b) THE MOVING COIL or D'ARSONVAL TYPE

This is by far the commonest type used in radio engineering. This type has a permanent magnet to supply the field for the moving coil to act in, and so the power consumption is kept to a very low value, being of the order of 0.00005 watts.

This type of meter is essentially a d.c. meter, but by means of accessories, such as thermocouples or rectifiers, can be used for a.c. measurements with the added errors introduced by these accessories.

When used *without* accessories as above, it is capable of substandard accuracy and is frequently calibrated as such.

The range of this type can be extended by the use of series resistors and shunts, however when used with the accessories such as thermocouples and rectifiers, very definite limitations apply such as:

Thermocouples.—Seldom if ever used as voltmeters. Thermocouples should never be shunted, particularly when used for r.f. owing to current distribution due to skin effect. Common ranges, 100 Ma. to 100 Amps.

Rectifiers.—Used for both ammeters and voltmeters. The range as a voltmeter can be extended by series resistors or potential transformers for voltages below 10v. full scale as for all practical purposes the zero and 0.5v. readings are co-incident, due to the voltage drop across the rectifier. This point also illustrates why shunting of this type cannot be adopted to increase the current range. A current transformer must be used so that the meter acts as a voltmeter of reasonable range (approx. 0-50v.) so as to get an approx-

imately linear scale, rather than the meter acting as a millivoltmeter with a compressed lower part of the scale due to the voltage drop.

This type of meter is generally made so that the moving coil carries currents of 50 microamps. up to 10 milliamps. since the control springs are called on to carry this current. The resistance of the moving coil, together with springs, varies from approx. 1,000 ohms in the case of 50 microamp. meters to 5 ohms for a 10 Ma. movement. In general the resistance of an 0.1 Ma. is of the order of 50-100 ohms, varying with different makes.

The dynamic characteristics of these meters, such as speed of response and overwinding, is controlled in manufacture according to the intended use. For example, when used as an r.f. indicator (i.e. a millivoltmeter) an ordinary 0.1 Ma. meter would have too high a resistance and the reading would be very sluggish due to the shunting effect of the couple—so an indicator is made having a few turns of heavy wire to reduce the resistance and the former (metallic) is either split, so as not to form a short circuited turn, or entirely removed. The usual r.f. indicator is from 1-3 Ma. (seldom any definite value) and when used on d.c. without its couple, oscillates about its reading before coming to rest at a steady indication. For this reason, when transporting an r.f. indicator separate from its couple, it is advisable to short circuit its terminals to prevent damage.

Note.—This type of meter available ex-disposals, with a burnt out couple can be advantageously used for high values of current, such as 100 Ma. or higher as the shunt required will act as a short circuited turn across the moving coil and so provide the required damping.

(c) THE MOVING IRON TYPE

As its name implies, depends on the attraction of a soft iron vane due to the field produced by a field coil connected to the supply being metered. The springs in this case are not required to carry any current, so that the windings are constructed to carry usually 5 Ma. as a voltmeter and up to 50 Amps. as an ammeter.

This type is capable of substandard accuracy on either a.c. or d.c. but must be calibrated for one or the other and in the case of a.c. for one particular frequency. They should not be confused with the cheap type such as used on battery chargers or car dash panels, this type uses a permanent magnet operating in the field.

The range of the moving iron meter can be extended by the use of resistances and current transformers (in some special cases by shunts). They are rather subject to the effect of tempera-

* 11 Gelling Ave., Strathfield, N.S.W.

ture due to the large resistance of the copper wire (large number of turns) and so usually have a carbon type series resistor (negative temp. co-eff.) in the case of voltmeters to compensate in some degree for varying temperatures. This type of meter should be placed in circuit approx. 30 minutes before reading for maximum accuracy. The power consumption is quite high.

(d) THE ELECTROSTATIC TYPE

The electrostatic type is constructed similar to a very fragile or free moving variable condenser and relies on the attraction or repulsion of the field produced in the plates. Its particular application is for measurement of high potentials where power consumption of the meter is important, although some cases are on record of meters as low as 50v. full scale.

The power consumption of this type is negligible, but they are rather fragile and they usually rely on gravity for the restoring force, in which case they must be used in the vertical position.

(e) THE HOT WIRE TYPE

As its name implies, the hot wire type depends for its action on the expansion and contraction of a tensioned filament which carries the power being metered. A ligament is attached to this heater and by means of a system of levers and pulleys amplifies the expansion and contraction of the heater and converts it to rotational movement of the pointer.

This was probably the earliest form of r.f. indicator, but is seldom encountered these days. The main disadvantage is in the power consumption due to the resistance of the heater and the fact that unless very elaborate precautions are taken in the manufacture of the case and base plate, the zero requires constant re-adjustment due to their heating by the power consumed and also the ambient temp.

SOME GENERAL COMMENTS

Thermocouples are constructed so that when current passes through the heater wire, heat is developed at the junction of two dissimilar metals having different thermal e.m.f., and so a current is generated which causes a deflection on the indicator.

Apart from skin effects at high frequencies, this accessory allows the moving coil meter to be used with equal accuracy on a.c. and d.c., although with some forms of couple it is necessary to take the mean of reversed readings when used for d.c.



A = 10% plat., iridium, or nichrome.
B = usually 10% platinum, iridium or nichrome.

Rectifier Units.—These must be wired to the meter so that no power can be applied to the a.c. terminals if the meter is disconnected from the d.c. terminals, otherwise the voltage across the rectifier will rise and burn the rectifier out. The full subject of the application of metal rectifiers to moving coil meters is a very large one and would require a complete paper on its own to cover such things as wave form error, etc.

MOUNTING OF METERS

When meters are mounted in panels the size of the hole and the material of which the panel is made will have an effect on the reading. If the panel is of steel or any other magnetic material, panel thicknesses of $\frac{1}{8}$ to $\frac{1}{4}$ inch will reduce the readings by approximately 10%; this figure will vary with different types and manufacturers.

The moving coil type can have this error corrected by adjusting the magnetic shunt which is found in the form of a small piece of metal bridging the magnet poles.

When opening the meter case it should be borne in mind that the meter is a very delicate piece of equipment and any foreign material which is allowed to enter will sooner or later get into some part and cause the meter to stick. Particularly hairs or specks of magnetic matter.

Further it should be appreciated that with normal positioning of the jewel and pivot that the pivot exercises a pressure of about five tons per square inch on the jewel and that any rough handling or jarring of the movement can raise this pressure to several hundred tons and so chip and destroy the jewels.

When using any meter it is extremely important to obtain an approximate idea of the maximum value of volts or current to be expected, so that it lies within the range of the meter being used. If using a multi-range meter choose the highest range available to start and decrease the range until a reasonable deflection is obtained on the upper half of the scale, for the reason of accuracy as explained in the foreword.

With a single range meter use can be made of shunts and series resistances which can be varied and eventually removed and the accurate reading obtained by direct reading on the meter.

If the pointer is allowed to fly over hard to the back stop it will most certainly destroy the balance of the movement (due to the position of the back stop) with the consequence of distorting the scale law of the meter.

British Standard Spec. 89 lays down: "The departure from zero of a spring-controlled instrument due to start of balance shall not exceed 1% of the maximum scale value when the instrument is moved in any direction within an angle of 45° from its normal position of use." Re-balancing of a meter to this condition is a tedious and delicate job requiring considerable knowledge and skill after the original balance has been destroyed, so avoid it.

IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

SEPTEMBER, 1950

Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following world zones:—

| Zone | Region | Terminal |
|------|-----------------|---------------|
| 1 | Western Europe | London |
| 2 | Mediterranean | Cairo |
| 3 | N.-West America | San Francisco |
| 3a | N.-East America | New York |
| 4 | Central America | Barbados |
| 5 | South Africa | Johannesburg |
| 6 | Far East | Manila |

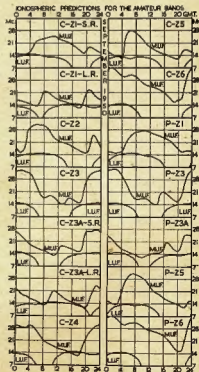
The Perth charts are similar to those based on Canberra.

QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-San Francisco circuit would be useful:—

1. Were good conditions experienced on 7 Mc. for the period 0700 to 1500 hours G.M.T.
2. Was the 14 Mc. band workable between 1200 and 2000 hours G.M.T.?
3. Was the 28 Mc. band workable for several hours around midnight G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the months.



100 Watt 100 Mc. Transmitter

Using Linear Tank Circuit

BY W. E. McGOWAN,* VK2MQ

The need for a full 100 watts on 144 Mc. has been felt for a long time, and with the advent of 826s becoming available on the Disposals market, they seemed the ideal tubes to use in the final.

In addition a linear tank circuit was included as a must for the tank circuit in the 826s.

The radio frequency portion of the transmitter Fig. 1 consists of a 6AG7 harmonic oscillator using an 8 Mc. crystal and a slug tuned coil in the plate circuit doubling to 16 Mc., that in turn is followed by a 2E26 tripler capacity coupled to a push pull 832 tripler to 144 Mc. In common with most triplers, the 832 stage has to be driven very hard to get sufficient output to drive the 829 buffer amplifier.

The method of coupling used between the 832 tripler and 829 buffer grid requires a good deal of time spent on it as the input capacity of the 829 and strays are used to tune the coil, which

means as optimum coupling is arrived at adjustment of turns is necessary. More time was spent here than anywhere else in the circuit.

The 829 is then inductively coupled in like manner to the 826s grid except that due to the layout it was not so easy to get at, with the result the 826 grid coil is tuned with two washers $\frac{1}{8}$ " diam. on the end of $\frac{1}{8}$ " Whitworth screws which are soldered on to the neutralising condensers; once again the inductance is adjusted for optimum transfer of energy with frequent trimming of coil.

The metering of the two grids of the 826s was done individually to obtain balanced drive, and the r.f. chokes must be good because they are in a particularly hot spot in the circuit (BT1 resistors filled with 34 s.w.g. enamel wire).

The neutralising condensers are made from trimmers which are available on the market and consists of a polystyrene former with concentric rotor and stator plates riveted on the inside. The fixed or stator plates are removed from the inside leaving the rotor plates to move up and down the inside of the polystyrene tube. A section of brass is

* 47 Iandra St., Concord West, N.S.W.

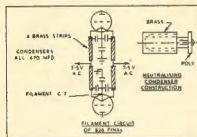


Fig. 2.

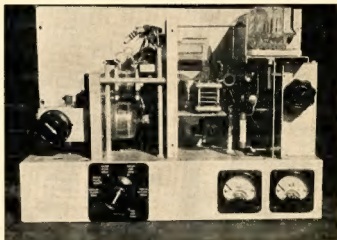


Fig. 3.—Front view of transmitter showing placement of stages to give minimum lead length, with 826s (final) at top right hand corner.

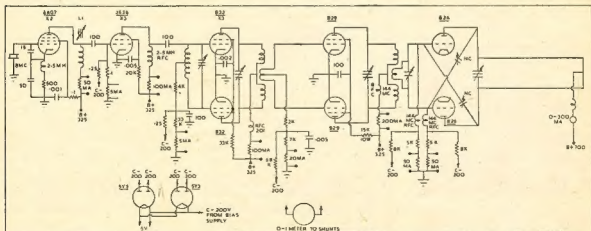


Fig. 1.

now turned up which is $\frac{1}{4}$ " bigger in diameter than the tube and $\frac{1}{4}$ " long with a step equal in diameter to polystyrene tube at the bottom and $1/16$ " deep to fit snugly over bottom of polystyrene former. This gives the required capacitance and increases the dielectric spacing, being part air and part polystyrene, to prevent arcing over.

It has been shown that long lines are preferable to coils particularly at v.h.f.s. It has been further shown that long lines shielded (linear tank circuit) has a still higher Q, not that all of it can be realised because of the poor dynamic resistance which tubes show at v.h.f., but nevertheless it is preferable to using a coil/condenser combination.

The construction consists of two $\frac{1}{4}$ " diameter copper tubes $7\frac{1}{2}$ " long mounted on 2" centres, with a very small capacitance mounted across them for final adjustment. In addition, because of the small tuning range used (in this case about 4 p.p.), a sliding shorting bar is used.

The shielded portion of the linear tank consists of a box $6" \times 1\frac{1}{2}" \times 3\frac{1}{2}"$.

LAYOUT

Looking at the photograph, on the left hand side is shown the input tuning of the 829, behind that the 2E26 grid cap is just showing to the right of the 2E26 which is not visible. The 6AG7 and crystal are behind the 829.



Fig. 4.—Right hand three quarter view of transmitter, showing shield for linear tank circuit with its associated tuning condenser.



Fig. 5.—Left hand three quarter view of transmitter. The 2E26 and 6AC7 oscillator are behind the left hand tuning condenser.

Progressing to the right, is the 829 lying horizontally under which is mounted the plate tuning condenser; still further to the right are the 826s.

The partitions upon which the 826s are mounted consists of two shields, one of which holds most of the input circuitry, and the other which holds the bracket containing the two 826 sockets



Fig. 6.—Back view of linear tank circuit.

and the shield which covers the long lines of the plate circuit. In addition, on this shield are mounted four strips of brass $4"$ long and $1"$ wide with mica between them and the vertical shield (Fig. 2) which are used as filament bypasses. The use of these two shields permits good circuit isolation between the input and output of the final.

TABLE OF VOLTAGES AND CURRENTS

| Valve | Freq. | Plate Volts | Plate Ma. | Screen Volts | Grid Volts | Grid Ma. |
|-------|---------|-------------|-----------|--------------|------------|----------|
| | | | | | | |
| 6AG7 | 16 Mc. | 325 | 13 | 150 | | |
| 2E26 | 48 Mc. | 325 | 60 | 160 | 100 | 1 |
| 832 | 144 Mc. | 325 | 55 | 160 | 130 | 3.5 |
| 829 | 144 Mc. | 325 | 120 | 175 | 88 | 10 |
| 826 | 144 Mc. | | | | 200 | 40 |
| 826 | 144 Mc. | | | | 200 | 40 |

FINAL PLATE CURRENTS

| | Min. | Max. (loaded) | Watts Input |
|--------|--------|---------------|-------------|
| 375 v. | 40 Ma. | 120 Ma. | 48 w. |
| 500 v. | 45 Ma. | 140 Ma. | 70 w. |
| 600 v. | 52 Ma. | 150 Ma. | 90 w. |
| 700 v. | 60 Ma. | 180 Ma. | 126 w. |

These figures were developed after loading final with the antenna so that at 700 volts, the input was 126 watts, then voltage dropped in stages as shown above.



Fig. 7.—Front view of linear tank circuit.

In conclusion, may I say that most of the gear used was taken from a 522 transmitter and other Disposals gear, the efficiency generally is quite good, and in justification of the energy expended is a desire to see our 144 Mc. band more populated, so what about it.

[The Magazine Committee is indebted to the author for the supply of the half tone blocks free of charge.]

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MAGNETIC TAPE RECORDERS

BY F. M. NOLAN,* VK4FN

Before and during the war the Germans were very active in the field of magnetic sound recording. Lorenz produced a wire recorder for dictaphone use, but the most significant work was done by A.E.G. and the State Broadcasting Service, who co-operated to develop and perfect a system of magnetic recording using plastic tape coated or impregnated with microscopic particles of magnetic material.

During the war an improvement in performance was achieved and the quality of reproduction of both speech and music obtainable by means of this system is of a high order and, it is claimed, consistently better than that achieved with other systems.

There are two principle systems, firstly, the use of supersonic frequency a.c. for biasing (pre-magnetising) as well as for wiping (erasing), and secondly, the use as recording medium of a tape whose magnetisable layer consists of a dispersion of ironoxide particles in a plastic material. It should be noted that the use of a.c. for biasing was being developed at the same time in the U.S.A., notably by the Armour Research Foundation of the Illinois Institute of Technology, Chicago, though the recording medium in this case was a thin steel wire.

The two features in combination mentioned above have resulted in improvements in frequency response, harmonic distortion, and in the relative strengths of programme and background noise, that is, signal to noise ratio.

In America the first reference to the subject of magnetic sound recording was made in a proposal by Leonard Fuller in 1918. Fuller suggested the use of r.f. erasing with direct current premagnetisation on the wire recorder, known as the "Telegraphone Wire Recorder," developed by Poulson.

In 1921 Carlson and Carpenter described a system for recording on steel wire or tape in the presence of a supersonic signal to agitate the carrier during the recording process. No reference was made to methods for erasing.

In 1929 Carl Rhodenham described a method of using alternating current of audio or higher frequency to erase a magnetic recording.

In 1931 Alversen proposed a system for magnetic recording using a r.f. carrier to saturate the wire in absence of audio, and the audio signal was used to suppress the carrier producing a recording. No erasure was thought necessary with the system.

However none of these proposals bore fruit in a successful commercial equipment. Some of them appear unsound in theory and actual practical application, but they do show that some early thought had been given to this field of recording.

It is known, however, that the Armour Research Foundation did considerable work on high frequency wire recording during the early war years.

The portable wire recorder, developed by this laboratory during the war makes use of both r.f. erasure and recording, and this considerably improves its performance.

In Germany the most significant work known to have been done on h.f. erasing and recording systems, was done by the two organisations mentioned earlier in this article. Their joint efforts produced the high frequency system using a plastic tape and is known as the "Magnetophon."

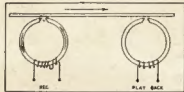


Fig. 1.

The development of this recording technique is credited to Dr. Hans Braumuhl and Dr. Walter Weber. The proposal for their system was made in 1940 and it found widespread application in broadcast service—after that time—and by the end of the war most of the broadcasting stations in Germany were using the magnetophon to replace other types of recordings, and it provided recording performance not surpassed by any other method, with certain advantages not offered by other systems.

Recording is done on a plastic tape about 0.04 millimetre thick and 6 millimetres wide, which is impregnated or coated with microscopic particles of magnetic material. This unique record-

ing material has been the subject of considerable study, and its successful development is to a large degree responsible for the excellent performance of the recording system.

The development of the tape has passed through three clearly defined stages. The earliest type produced (known as type C) used black magnetite, whilst the later type (known as type L) used red magnetite. Both these types were homogeneous. Type LG, the most recent, consists of a carrier layer of non-magnetic material basically polyvinylchloride, which is coated with a thin layer of magnetite dispersion similar to that used in the type L. The manufacture of the tape is a highly specialised process.

The H.F. models of the magnetophon are equipped with three heads, which perform the functions of erasing, recording, and playing back. These heads, which are similar in appearance, differ only in gap width and winding impedance. They are arranged so that all three are in contact with the tape and work on a longitudinal magnetisation principle. Fig. 1 shows a sketch of recording and play-back heads in relation to the tape.

The material and dimensions of these heads have been carefully designed to secure the lowest possible tape speed compatible with the desired volume and frequency range.

The significant features of the process of erasing and recording are the use of a h.f. which leaves the tape in a magnetically neutral state, and the use of a certain value of h.f. signal during the recording process to minimise the incremental magnetisation background noise, and decrease distortion due to

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the non-linearity in the magnetisation curve of the tape. This process has been the subject of considerable research, and is responsible for a great improvement in recording performance.

For broadcast purposes, the tape is prepared in 1,000 metre rolls, which are some 10 to 12 inches in diameter, 6 millimetres thick and the weight about the same as two twelve-inch records. One roll gives a playing time of around 22 minutes, at a tape speed of 77 centimetres (about 30 inches) a second.

With proper equalisation in the recording and playback processes, a tape speed of 77 centimetres per second allows a frequency range whose lower limit is governed only by the associated electrical circuits. The upper limit being 10 Kc. down 2 db. Actual overall response measurements of typical systems show a virtually flat characteristic between 30 and 9,000 cycles; with present tape quality it is possible to extend the range to at least 12 Kc. at present tape speed, this calls for a good amplifier and a speaker splitting system using two speakers.

A dynamic range of 60 to 75 or even 80 db has been achieved in this equipment. Actual values are dependant on tape characteristics, hum pick up, and to a surprising extent on the quality of the amplifiers used for playback.

Magnetic recording using tape is simple, rapid, and almost fool proof; momentary over-modulation produces only a slight increase in distortion as the curvature of the magnetisation curve is encountered. This a gradual effect and there is no phenomena comparable to the groove cross over, or retract encountered in disc recording, or light-value clash encountered in photographic systems.

A recording is ready for instant playback and may be monitored during the process. A programme may be made up from several tape recordings by cutting and joining the tape; all that is needed for this is a pair of scissors and cement.

Now for some technical details of the tape developed by the Germans. The use of this type or recording material was first proposed in 1928 by Fitz Pfeffer in Dresden. It was developed by A.E.G. who did the work in mechanical and electrical portions and I. G. Farber who developed the tape. The first type being the Type C as mentioned earlier in this article, which was a cellulose-acetate backing carrying an active layer 0.01 0.02 millimetre thick, composed of 90% magnetite (ferric-oxide) of grain size 0.002 millimetre and 10% brittle. This tape tended to become brittle after long storage, and occasionally seemed to "shed" some of its active surface. Noise level was fairly high due to non-uniformity of the active layer.

The Type I Tape was an improvement on the "C," this used a body of "Luvitherm," a variety of polyvinyl-chloride, in which the magnetite was directly impregnated. This produced a very uniform material with excellent mechanical properties which does not appear to deteriorate with age like the "C" type tapes. Background noise with this tape is considerably reduced, and it gives excellent results, particularly with the h.f. systems.

Just before the end of the war, extensive research culminated in the development of the L-G tape. This type had a Luvitherm backing, with a carefully controlled, particularly uniform surface of magnetite with adhesive. Studies of particle size, permeability, and layer dimensions led to development of a layer size and composition which gives optimum performance. It is stated that this new tape gives recording characteristics somewhat superior to the type L tape, and retains the excellent handling and life characteristics of the latter, with some increase in mechanical strength. The L type tape is much the easiest to produce in quantity, but mass production problems for the L-G type have now been overcome.



Fig. 2.

It can be shown experimentally and theoretically that the permeability and thickness of the active layer has considerable effect on the upper limit frequency, and the dynamic range. The permeability and thickness of the magnetic layer determines the dispersion of the magnetic field in the layer and affects the field across the gap in the recording and playback heads. This modifies the apparent gap width and so determines the upper limit frequency. The factors also determine the signal energy level of the recording, thus affecting the dynamic range which can be achieved with the existing amplifier noise, variations in the magnetic layers and other limiting factors.

German research has shown that under the magnetophon operating conditions, optimum compromise between upper frequency limit and dynamic range is achieved when the following equation is approximately satisfied:

$$\text{Thickness of sheet—} \frac{10^{-3} \text{ mm} \times \text{Permeability of layer}}{\text{Permeability of air}} = 100$$

The physical and mechanical properties of the tape are factors affecting the constancy of reproduction speed. Study has been made to determine the extent of speed variations caused by tape shrinkage and stretch under operating conditions. It has been found that under normal conditions with a tension less than 250 grams, the speed variations resulting from this source are negligible.

The three heads used for erasing, recording and playback are mounted side by side, each of which consist of a circular assembly of high permeability laminations made up of two semi-circular actions, each carrying half the coil winding on a bakelite bobbin.

These two sections are fitted together in a diecast holder with a non-magnetic spacing shim between one joint to give a carefully dimensioned gap. The erasing head has a gap width of 0.5 mm. with copper spacer. The winding con-

sists of two sections containing 75 turns each. Each section has an inductance of 0.2 millihenries.

The recording head has a gap width of 45 mm. The windings consist of two sections, each 150 turns. The inductance of which is 7 millihenries. The recording head has an additional gap of 0.3 mm. on the rear side to prevent saturation.

The playback head has a gap of 20 mm., two windings each 250 turns and an inductance of 80 millihenries.

Each head is covered (except for the winding face) with a shield of high permeability metal to minimise the effect of stray fields. Leads are taken out through a shielded multiplug and the entire head assembly is quickly removable with two thumb screws.

For best results, the recording and playback heads must be carefully aligned so that their gaps are parallel. Actual alignment is provided for in most cases by using an eccentric washer between the head and its mounting.

Erasing is accomplished by energising the previously described head with between 120 and 150 milliamperes at a frequency in the region of 35-40 Kc. The frequency used is not critical. It must be high enough to cause several reversals while the tape is moving a distance equal to the erasing gap width and the upper limit is determined by the hysteresis losses and the difficulty of feeding the coils. Sufficient energy can be obtained from a self excited tetrode oscillator, such as a 6V6. It is German practice to feed the erasure through a condenser in series resonance.

Recording is accomplished by energising the recording head simultaneously with the desired audio signal and a pre-magnetisation current at supersonic frequency. There is an optimum value of pre-magnetisation current and the audio input must be established considerably for optimum results.

The current through the coil should be the same for all audio frequencies to keep the magnetic recording level in the tape independent of frequency. This condition can be met by feeding the head (an inductive load) from a tetrode, which tends to give constant current operation. Furthermore, at the high audio frequencies when the tape moves an appreciable fraction of the gap width during a cycle, it is necessary to increase the signal to compensate for the "slit" loss in a manner comparable to motion picture practice. This is done by simple R-C or L-C circuits to boost the signal over the desired frequency range.

The pre-magnetisation current determines the results. There is an optimum for lowest distortion, best h.f. response and lowest background noise. The amount of current is determined by the characteristics of the recording head.

In the magnetophon the recording head is energised with from 7 to 10 Ma. of current at from 80 to 100 Kc. In some recorders 150 to 200 Kc. is used; at the same time the audio current is about 5 Ma. at 1,000 cycles. The chosen value of pre-magnetisation current is that which produces a maximum audio output at very low recording levels at the upper limit of the frequency range. Under these conditions distortion is about 2% at 1,000 cycles.

N.S.W. Emergency Work During Disastrous Floods

BY PETER ALEXANDER,* VK2PA, AND BILL MOORE,† VK2HZ

To describe the events that took place in emergency working in N.S.W. between 23rd June and 29th June as the greatest ever in Australia would be no exaggeration.

In all, some 18 Amateur Stations in flooded areas in the North Coast were active performing a marvellous job in the relief of the public and assisting the various authorities to restore normal facilities.

Twenty-four stations including official stations were active in the North Coast Net, plus of course aircraft and Army "Ducks." In almost round the clock operation, the Net kept in operation for six days. During the major portion of the period, Amateur Radio Stations provided the only means of communication between several flood bound towns.

In the Hunter Valley the Emergency Net was alerted and members stood by for a similar period awaiting any call for assistance.

The network on the North Coast extended from Brisbane, where Frank Nolan, VK4WI was active, to Sydney, where official station VK2AA operated. Control was exercised by Peter Alexander, VK2PA, at Port Macquarie.

Serious flooding and interruption to normal communication channels occurred in Taree, Port Macquarie, Kempsey, Coffs Harbour, Bellingen, Grafton and surrounding districts almost simultaneously.

The network commenced functioning shortly after the usual morning contact between VK2PA and VK2ASF and VK2ZS in Kempsey on 23rd June. VK2GS and VK2AYP in Sydney relayed news of the flood position to the Wireless Branch and shortly afterwards the P.M.G. Station, VK2AA, came on the air. The Net then moved to the official emergency frequency of 7002 Kc. and the following stations reported in within the next 24 hours as the position in their location warranted it. VK2ZS at Kempsey and VK2ZS/Portable, operated by D.C.A. Technician Merv Harrison, at East Kempsey, and later at Gladstone; VK2ARY Bellingen, VK2JK, VK2AJB, and VK2ARJ Coffs Harbour; VK2LH, Lismore; VK2ADE, Casino; VK2TB and VK2NY at Grafton; VK2XO, Raleigh; VK2AEY, Taree.

It might be pointed out that with the exception of VK2PA and VK2AEY at Taree, all stations lost their normal C.C. supplies, due to flood damage and the majority of these stations operated effectively on emergency power from batteries.

VK2ARY used a No. 11, VK2JK emergency equipment with motor generator supply, VK2XO utilised a Type A Mark III. on 7100 Kc. xtal. contact. VK2XO, although not heard often due to his enforced evacuation from Raleigh sub-station, did a very fine job functioning in the Net and receiving very important traffic for the C.R.C.C., enabling power

It has been unfortunately impossible to really obtain a true picture of the tremendous amount of Amateur Radio activity that took place during the North Coast and Hunter Valley floods during late June.

It was hoped that all the Amateurs that participated could tell their own stories of their activity, however that was not to be. Many of these Amateurs still have their problems with rivers rising again and for that matter, many of them lost much of their equipment and suffered great personal loss.

The writers are certain that Amateurs throughout Australia extend their sympathy to those of their fellows who lost so much during the disastrous floods.

to be supplied to many areas including Kempsey and Coffs Harbour perhaps days before it would have otherwise been possible.

By Saturday the Net had formed itself and Newcastle was represented by VK2ZC who handled traffic for the Newcastle Police, etc., from the stricken area north. VKs 2AHA, 2ADT and 2ASJ did an excellent job at a later stage obtaining aircraft E.T.D's, etc. VK2ZC was assisted by VK2CS and VK2KG.

Camp Shortland, call UWW, and Sydney Aeradio also operated full time in the Amateur Bands. The operator at VZSY Aeradio, incidentally, was Chas Peddell, VK2KN, who did such a fine job in last year's Kempsey floods. The

Postmaster at Dorrigo, an ex-commercial operator, came on with the Net and operating an FS6 handled traffic for that area.

Most of the operating was conducted on the 7 Mc. band by day, and the 3.5 Mc. band by night. However, quite an amount of work was done cross band to aircraft, forestry, and Army frequencies. VK2WH, of Forbes, acted as a link station when conditions were bad and supplied many "fills."

VK2JC, Narriabri, VK2APS, Tamworth, and VNS Armidale (District R.I. Station) passed very valuable weather reports and river heights that otherwise would have been unobtainable. VK2EA, Kangaroo Creek, did an excellent job in repairing broken telephone lines in the Nymboida District.

In Kempsey, three stations were active, VK2ASF, VK2ZS and VK2ZS/P (Merv. Harrison). The latter station moved to Gladstone and, using an FS6, handled over 100 important messages. The three stations kept the Kempsey district linked, while VK2ZS handled traffic to the Amateur Net. VK2ASF was flooded out from his shack quite early in the piece and then moved to the Forestry Office and operated mainly on Forestry frequencies.

VK2XO, as mentioned previously, had to flee from the shack, and took the Type A Mark III. with him, but didn't have time to collect a key, so did his sending by touching two wires together. Crieff stored much of his equipment in the roof of the garage. Unfortunately the water rose right over the top of the garage and carried the gear, tools and books out to sea. VK2XO arranged his family's rescue from the roof tops via Amateur Radio and this link was also

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responsible for the rescue of many people in the Raleigh District. VK2ARY, from Bellingen, up the river from Raleigh, arranged the rescues. Harry was using a No. 11 and handled a great deal of important traffic for his district.

At Coff's Harbour VK2JK had a great deal of trouble; the cyclone which, incidentally, wrecked the local fishing fleet, took all antennae with it, but Jack managed to get a temporary antenna erected and kept going with only a brief delay.

In Grafton, VK2NY and VK2TB operated in the Net until flood waters rose and they had to evacuate. VK2ADE, in Casino, although not always near the rig, monitored the frequency and came on when required. He used the landline to relay messages to Lismore and Grafton. Charlie did a fine piece of work in getting the wheels turning for an air drop on Bellingen.

VK2AEY handled all traffic for that area and his station was used as headquarters for the Army's "Ducks." Bill also worked with the aircraft dropping relief supplies.

At control, VK2PA, excellent co-operation was given by the Police, Postmaster and Shire Council. A phone was installed in the shack by willing

helpers and a direct line was kept open to the Shire Council Wauchope where the train was organised and a shipment of Army "Ducks," bread, etc., was made to Telegraph Point. The only means of crossing the Hastings River at this stage, Saturday 24th, was via the train from Wauchope, as the floods had already closed the main highway north at Port Macquarie. In the later stages, a direct line was obtained to VK2ZS at Kempsey which provided another channel.

Throughout the operation, traffic on the emergency frequencies was extremely heavy. VK2PA recorded 558 messages in and out excluding telephone traffic. VK2ZS and VK2ZS/P at Gladstone passed 80 urgent telegrams besides much Police traffic. VK2ARY handled over 100 messages and VK2JK's score was well up. The grand total was well over the 1,000 mark.

Most of the Amateurs participating operated for the full period of six days, sometimes for many hours without sleep.

Letters thanking the network for the grand job done were received at VK2PA from the Council of the Municipality of Kempsey, Municipality of Port Macquarie, Hastings Shire Council Wauchope. Amateurs who participated re-

ceived a letter of thanks from Mr. S. F. Kellock, Deputy Director Posts and Telegraphs.

During the North Coast working, members of the Hunter Valley Emergency Net were standing by as river levels rose along the Hunter. The normal communication channels held and their services, fortunately, were not required. River height readings for the Police were, however, supplied as requested. Stations from Muswellbrook to Maitland were active including VKs 2ANU, 2VU, 2JZ, 2ADT, 2AKP, 2XQ, 2TY, and 2DG.

A link was also supplied from Maitland by VK2AKP to Newcastle and then to the North Coast allowing Army "Duck" stations there to communicate with their base.

That completes the story; as mentioned previously, it was hoped that it would have been fuller and if anybody who assisted was missed, please accept the writers' apologies. Thanks must also be extended to the many chaps who were listening and were available to assist if required.

It was a good job done all round and service rendered to the general public received much publicity in the Press, especially in country areas.

DX NOTES BY VK4QL

Under the call of VK2QL, I used to write DX notes for the N.S.W. Division. With very little warning I left VK2 for a six months sojourn in VK3 and, having to do a considerable amount of study, I could no longer carry on the notes. I was hoping to see the notes carried on by a successor. The magazine has now requested that the notes continue on a Commonwealth basis. So, now it is up to the DXer's from all States to let me know what are their doing, so as I can have material for the compilation of the notes each month. Remember, it is only from information received, we can find out what happens in each State. Townsville is a very different QTH to Melbourne, Perth and Darwin, and conditions therefore will also be very different.

● My address for posting any "gen" you might have is: F/Lt. F. Hine, No. 10 (G.R.) Squadron, R.A.A.F., Garbutt. Incidentally, you need only put one (1) penny stamps on your letters if you use that address.

On coming to VK4 for a couple of years duration, I decided to bring my small rig and see just what could be done on reasonably low power and an ordinary simple antenna, in this case a Windom, 132 feet long. In the five months on the air, the results have, I think, especially with the conditions existing, been rather extraordinary.

The power has not exceeded 45 watts on 14 and 28 Mc., 25 watts on 3.5 and 7 Mc. On 7 Mc. five continents have been worked, Europe to come. On 14

Mc. 97 countries, 44 States, and 37 Zones, a W.A.C. being completed in 63 minutes. S9 reports from four Continents and S8 from the other two on 14 Mc. 28 Mc. has four Continents and this band was not operated until the middle of May when the band had practically "had it" for the season.

All this is not in the form of boasting of prowess, but to show that high power and multi-element arrays are not an essential for working DX.

Conditions have not been good over the last couple of months and according to the Ionospheric Predictions, 14 Mc. at least, is going to be worse for the month of August. Despite the poor conditions, some very nice and rare DX has been worked and some others heard, but not worked. When the band seems dead I find that is the time some very rare DX appears and is worked, so gang don't use the DX bands for cross town chatter. Remember, if you can't hear DX, others can and the cross town talk interferes with somebody who maybe can.

DX has been heard right through the daylight hours the last couple of weeks. Between 10 and 11 a.m. on a recent day all continents were heard on 14 Mc., which included quite a few Europeans and South Americans round about 7 a.m. On a recent afternoon ZS2X was

worked at 3 p.m. and VQ3BNU was heard. This gives an idea of the way the old ionosphere is working at the present time up here. I find conditions at Ballarat different to Townsville. I worked one South American at Ballarat in six weeks' operation, yet up here, South America is dead easy. The difficulty here is Europe in the late evening or early morning.

Well gang, this is the start, if you are interested in the notes keeping on let me have some copy, either by letter or over the air.

● The thought for the month: "Give honest reports and help to clear up the bands." Cheers till next month.

PREDICTION CHARTS

The Prediction Service is particularly disappointed at the non-receipt of any information, requested each month, relating to the accuracy of its predictions.

These comments should be forwarded to your Divisional Council for onforwarding to Federal Executive.

FIFTY MEGACYCLES AND ABOVE

Compiled by J. K. RIDGWAY, VK3CR.

There is very little activity in report on the v.h.f. bands and no reports of interlattice openings have been received to date. The lack of activity on the bands seems to indicate much re-building activity in preparation for the summer DX season.

We earn with regret of the disastrous fire suffered recently by VK6QW, when his gear for all bands was destroyed. All 50 Mc operators, extend their sympathy to G.W.J. and hope that it won't be long before he returns to the air.

50 MC. ACTIVITY

NEW SOUTH WALES

VK2ARW, whose job it is to call cars and stations, finds time occasionally to appear on the band with a five-watt rig using a pair of 807s feeding a dipole-venter, times he is experimenting with 8K on wire receivers. Their chief difficulty so far has been to wipe the wire clean—a process resembling the demagnetizing of a watch.

SWT heard two RLEs on 28th June, but no contact was made. SARG, of Palm Beach, 18 miles north, puts a solid signal into Sydney city from a 100 watt rig and a six element beam.

We hear that the band was open between VK3-VK4 at the end of July but no DX was heard in Sydney. Despite a careful check on the band by several Sydney Ham's, it was suggested that in its slack periods on the v.h.f. bands, calls should be made, on 1 e hour and in 4-hour so that contacts may be more easily made. What is really wanted is greater activity on the band so that more details of ideas and results can be collected.

SANF, of Canby Vale, was contacted during one of 15 rare appearances on the band. He has an antenna farm which makes us air-freighters envious. He was using a long wire antenna when contacted.

2ARZ, of Cooberie, was working interstate in mid July. JRO, of Roseville, is trying to popularize 1 e h. 4 l of the band and has a signal on 59.6 Mc. 2VW had a spell at home with the 80 and has put together a double conversion receiver with 11 Mc. and 455 Mc. i.f. channels.

WESTERN AUSTRALIA

Very little changes in report from VK4 during the month of July on the various v.h.f. bands. No new signals to report on six meters. GHW has his super-regen receiver working OK and reports hearing 60B and 64B. His probably heard most of the other metropolitan stations by now. Harry has not as yet succeeded in working any stations on six vire, his signal was heard in Boro-nien, when he worked 60W (cross band). I believe GHW has an indoor beam and when he gets that outside and up a few feet it is as it should make all the difference.

GHW is told to try his new final, built for use with super modulation, but since building it up, signals over the 150 mile path to Perth have not

been good enough to permit phone operation. GGB has finally vacated his perch up in the wasteland of 50 Mc. Now he is v.h.f. working OK and no doubt saving the wear and tear on dial driving mechanisms of all other six metre receivers, converters, etc. I think GFW, down in East Fremantle, must be getting interested in six metres. Heard him transmitting on 20 and trying to hear six metre stations on his receiver. How you get the receiver working on this band Ray, because once you do, it won't be long before we hear you operating down here. 6AS talking about pushing his three element beam up a bit higher in readiness for the coming season, and thinking of adding the fourth element whilst on the job.

GCF has been threatening to give six metres a try, but haven't heard of Chouk yet. I do believe he can hear six metre signals, so the hold-up must be the transmitter. GGS, down in Harvey, still keeping up the sheds with 6BK—mostly on s.w. though, only occasionally are conditions good enough for phone operation.

144 Mc. DOINGS OF THE MONTH

NEW SOUTH WALES

During the month Glendavie Radio Club and Experimental Radio Society had a field day passing messages, decoding and encoding with 2AN as the home station. Mobile stations were situated at Prospect, Quail Hill, Koola Road and other likely high spots around the city. The day was dull and cold and there will be no more field days for a while.

SLZ, of Wentworth Falls in the Blue Mountains, is active on the band. He was heard putting a strong signal into Sydney at the end of July. 2XX is busy these nights giving details of his super regen and promises 8-8 signals at least on the high end, where his receiver requires testing. SPU is the latest and is busy looking for the band.

2XG and 2XX made contact over a distance of about 25 miles—a superb being used by 2XG and 2XX had his super regen. 2ANP has also contacted 2XX. SWJ, of Kingsford, has a pair of RL18s with 75 watts input and a two element beam. He is able to work 2XX in Sutherland but it is not happy about his super regen receiver.

We must record the story of the dog who was banished from the shack because he was blamed for the little puddles of water which had actually come down the co-ax feeder during the rain!

WESTERN AUSTRALIA

GOW now has 221 working nicely on this band and last heard using a fixed beam. However by now Gower probably has some method of rotation. HWY also using 221 on this band. Are you allowed space for an array on this band have or is that "reboten" too. Other stations operating 144 are NKW, GRU, GGB, 840, GFC (I think), and 8BO is getting the 215 final ready for operation.

228 MEGACYCLES AND ABOVE

228 Mc.—GFC and 8BO still doing good work on this band. GDW up in Bruce Rock has to wait till he comes down to Perth to use his 889 Mc gear, but is still experimenting ready for the next trip down. 88X has gear for this band, but the signal of writing these notes, has not succeeded in finding the right meter (I don't mean an O-I either).

570 Mc.—At the July meeting of the V.H.f. Society, NSW, which was held at a demonstration of 578 Mc. gear. Secretary, Don Cronin, brought in his superhet with highpower 1st stage—a beautifully done job with an alarm which barks when a signal comes on. SANP, mobile on 144 Mc, was at the meeting and an attempt was made to keep in touch with a car which was in the northern suburbs from Science House. 144 and 578 Mc. gear was carried in the car. Fog and rain made for difficulties, but the interest was an interesting one and has resulted in a few more converts for 570 Mc.

[Acknowledgments to VK1AQZ and VK6GB for the above material.—VK3CH.]

ABSTRACTS, OVERSEAS MAGAZINES

"WIRELESS WORLD," MARCH, 1950

P. 28 "Simple Cathode Ray Oscilloscope" M. Q. Seragius—A minimum component circuit which should meet most needs of Amateur use.

P. 29 "Wide Range R.F. Bridge" H. E. Styles—Describes a simple bridge for measuring resistance and inductance leakage measurements. Non tube audio generator and headphones as detector. Full description of ear calibration procedure.

P. 32 "Interference from Fluorescent Tubes" "Diaboli"—An obscure source of r.f. radiation and method of suppression.

P. 103 "Earth"—"Cathode Ray"—Some of the finer points on earthing and minimizing ham pick-up.

"CQ," APRIL, 1950

P. 11 "Building a Wide Spread 20 Metre Rotary Beam" W. L. Orr, W8SA1—Magnetic coil h.t.

P. 15 "The Traffic Midgits" W. E. Johnson, W4VOC—A simple technique for traffic.

P. 18 "An Economical 10 Metre Mobile Phone Transmitter" W. W. Cooper, W8WQZ—Uses 2E3 and 2244 quick heating vacuum tubes.

P. 20 "A Beginner's Transmitter for the 160 Metre Band" C. Lark, W1RJA.

P. 22 "A Simple Grade 807 Transmitter" E. W. Hill, W1PQA—Q4 c.c. 807 buffer doubles 807 final.

P. 23 "Simplified Low Power Telecode" to be available for use in the 160 Metre band. W. E. W8VFP—Just what is needed, the 807W which has the sum ratings as the 807, but has no power factor problem.

P. 25 "Extending the range of the World Dipper" W. M. Scherer, W9AEZ—Using a grid frequency oscillator at low frequencies.

P. 28 "In the Shack and Workshop"—(i) Frequency Halving your V.F.O. for 160 metre operation. (ii) Substitute for the ARCS plug. (iii) Half volt-gram from a bridge rectifier.

"QST," MAY, 1950

P. 11 "A Variable Selectivity Sharp (F. Amplifier) B. Goodman, W1DX—Nine stages at 58 Kc.

P. 16 "A Low Cost T.V.I. Filter" C. A. Dent, W5CPV.

P. 19 "Tailor Made Antenna Couplers" G. Grammer, W4T—Although commercial coils are used, this contains much good information on antenna couplers.

P. 25 "Utilising the 825" R. M. Smith, W1FTX—A 250 watt amplifier for 160 and 1500 meters.

P. 29 "The Ground Wave at 4.5 Mc." C. P. Ricker, W8WCH—The probable consistent range on 160 meters.

P. 31 "Power and Receiver Techniques" L. H. Hippo, W4TCO, Part I—Building a rugged power P.P. 32 "A Compact Two Metre Stat or for Mobile Use" H. J. Hayes, W2JZMA model of intelligent compactness. Crystal controlled transmitter, modulator, receiver and power supply inside 7 1/2 x 15 x 8 1/2 chassis.

P. 35 "Graphical Solution of Superhet Tuning Design" P. V. Proolzen, PA0PUP—Determining h.f. oscillator values for simple tracking.

P. 34 "It's a Pretty Picture" J. V. Faldon, VK4OU—Home assembling your panels in color.

P. 35 "An Automatic Transmitter 'Turn-on-Off'" M. E. Hinkle, W8SO—Switches transmitter off after any keying break of more than two seconds.

P. 37 "A Simple Vertical for Forty" H. E. Thornhill, W0D3T—40 ft high self supporting dual tubing.

P. 40 "Hints and Kinks" (i) Full indicator for the BC221 using a magic eye tube. (ii) Improvement for soldering iron. (iii) Direct inductor hint. (iv) Soldering to polyethylene coil forms. (v) Measuring centre frequency of a coil with the twin lamp. (vi) Inductive coupling system.

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Correspondents: **W. H. St. John**, **A. J. A. Williams**;
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M. Whyte, VKE2AH, Vale St., Birmingham
Gardens, Newcastle, Coalfields and Lakes;
H. Hawkins, VK2YL, 27 Comfort Ave., Com-
mench, Western W. H. St. John, VK2WH, Com-
mench, Ferries, South Coast and South-
west B. Roads, VK2DO, Ferries, Yarrum
Western Suburbs; A. C. Pearce, VK2AHR, 131A
Balmora Rd., Leichhardt, Eastern Suburbs;
H. Kerr, VK2AX, No. 4 Flat, 144 Hewlett St.,
Brisbane, North Sydney, L. D. Cullen, VK2AM,
77 Military Rd., Moorman, Mt. George, J. A.
Williams, VK2ALD, 100 W. Rd., Carlton,
South Sydney; J. Wilson, VK2W, Cr. Wil-
son St. and Marine Pde., Marrubidge.

President.—G. S. C. Bommens, VK8OS.
Secretary.—O. Dyur (VK8DY), 10 Colington Ave., Brighton (AA 8955).
Administrative Secretary.—Mrs. S. May, Law Court Chambers, 121 Queen St., Melbourne, G.I.
Meeting Night.—First Wednesday
at the Radio School, Melbourne Technical College.
Zone Correspondents.—Western: C. C. Waring, VK8YW, 18 Stone St., Stawell; South Western: J. H. Barrie, VK8JB, 67 Victoria Ave., Perth; North Eastern: E. G. Wohlers, 107 Templeton St., Wangaratta; Far North Western: M. Folsie, 101 Lemon Ave. Rithkora, Eastern: H. O. Keilley, VK8AKR, 1000 Main Rd., Geelong; G. C. Case, VK8ACSE, Cumming Ave., Birchbirch.

DX C.C. LISTING

| | | | |
|-------------|---------|----|----|
| VK3JH (1) | .. .. . | 37 | 12 |
| VK3EJ (4) | .. .. . | 37 | 12 |
| VK3BF (10) | .. .. . |  | 12 |
| VK3WF (4) | .. .. . | 37 | 12 |
| VKERU (2) | .. .. . | 37 | 12 |
| VKEHD (6) | .. .. . |  | 12 |
| VK3LN (11) | .. .. . |  | 12 |
| VK4KS (9) | .. .. . |  | 12 |
| VK4JP (8) | .. .. . |  | 11 |
| VK4HR (5) | .. .. . | 35 | 10 |
| VKA4WW (14) | .. .. . |  | 10 |
| VK2ADT (18) | .. .. . |  | 10 |

Q.W.

| | | | | |
|------------|----|----|----|----|
| YK4MZ (5) | .. | .. | 40 | 17 |
| YK4PO (2) | .. | .. | 40 | 17 |
| YK4ON (1) | .. | .. | 40 | 15 |
| YK4P (15) | .. | .. | 41 | 14 |
| YK4PL (8) | .. | .. | 40 | 14 |
| YK4PB (16) | .. | .. | 39 | 13 |
| YK4VW (4) | .. | .. | 40 | 13 |
| YK4QL (5) | .. | .. | 40 | 12 |
| YK4PL (8) | .. | .. | 41 | 12 |
| YK4RP (12) | .. | .. | 35 | 10 |
| YK4RL (16) | .. | .. | .. | 10 |
| YK4RL (8) | .. | .. | 39 | 10 |

OPTX

| | | | | | |
|-----------|----|----|----|----|----|
| YAKU (8) | .. | .. | .. | 40 | 20 |
| YAKU (9) | .. | .. | .. | 39 | 19 |
| YAKU (10) | .. | .. | .. | 40 | 19 |
| YAKU (11) | .. | .. | .. | 40 | 16 |
| YAKU (12) | .. | .. | .. | 40 | 16 |
| YAKU (13) | .. | .. | .. | 40 | 16 |
| YAKU (14) | .. | .. | .. | 40 | 16 |
| YAKU (15) | .. | .. | .. | 40 | 16 |
| YAKU (16) | .. | .. | .. | 40 | 16 |
| YAKU (17) | .. | .. | .. | 40 | 16 |
| YAKU (18) | .. | .. | .. | 40 | 16 |
| YAKU (19) | .. | .. | .. | 40 | 16 |
| YAKU (20) | .. | .. | .. | 40 | 16 |
| YAKU (21) | .. | .. | .. | 40 | 16 |
| YAKU (22) | .. | .. | .. | 40 | 16 |
| YAKU (23) | .. | .. | .. | 40 | 16 |
| YAKU (24) | .. | .. | .. | 40 | 16 |
| YAKU (25) | .. | .. | .. | 40 | 16 |
| YAKU (26) | .. | .. | .. | 40 | 16 |
| YAKU (27) | .. | .. | .. | 40 | 16 |
| YAKU (28) | .. | .. | .. | 40 | 16 |
| YAKU (29) | .. | .. | .. | 40 | 16 |
| YAKU (30) | .. | .. | .. | 40 | 16 |

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2W1.—Sundays, 1100 hours EST, 7186 Kc. and 1000 hours EST 30 and 144 Mc. No frequency checks available from VK2W1 Intra-State working frequency, 7174 Kc.

VK3WI.—Sundays, 1130 hours EST, simultaneously on 3580 and 7195 Kc. and re-broadcast on 50 and 144 Mc. bands. Intra-State working frequency 7185 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI.—Sundays, 0900 hours E.S.T simultaneously on 3760 Kc., 7190 Kc., 14842 Kc., 52.4 Mc. and 144.130 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7045 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4 again returns to VK4WI.

VK5WI.—Sundays, 1000 hours SAST, on 7196 Kc. Frequency checks are given by VK5DW by arrangement only on the 7 and 14 Mc. bands.

VKSW1—Sundays, 0900 hours WAST, on 7196
Eo. No frequency checks available.

VKTWI.—Second and Fourth Sundays at 1000 hours E.S.T. on 7190 Kc. No frequency checks are available.

The following is a list of VK1 call signs, their private addresses and locations.—

VK1MY—M. Vause, 50 Mitchell Street, North Ward,
Townsville, Queensland; location, Heard
Island.

VK1YG—L. McGarrigle, c/o V. J. McGarrigle,
Prince's Highway, Engadine, S.W.W.;
location, Heard Island.

VK1PG—J. H. Gore, 12 Pearl Street, Newtown,
N.S.W.; location, Heard Island.

VK1JW—L. J. Ward, 43 Electric Street, Williams-
town, Victoria; location, Heard Island.

VK1JF—D. N. Cohen, 55 Devon Street, Ashgrove,
Brisbane, Queensland; location, Macquarie
Island.

VK1RB—R. Boyd, 6 Portland Street, Sealands,
Victoria; location, Macquarie Island.

F.E., on behalf of the Federal Council of the W.I.A., hereby gives notice that it is intended to alter the Federal Constitution of the W.I.A. (as amended 1947).

Section #14, as follows—Delete the word "thirty" and insert the word "fourteen" in lieu thereof.

Add 67A, **Membership Transfers:** "Where a member transfers from one Division to another (1) The recipient Division shall receive him as a financial member for the remainder of the financial year provided he was fully financial before departing from the losing Division. (2) The Secretary of the losing Division shall advise the Secretary of the recipient Division of the intending transfer and of the member's financial status and grade."

Add 434: "That in matters of finance involving all Divisions, a majority vote of at least 5 to 2 of the Federal Council be required for the passing of the motion."

Sept. 22-24: VK-ZL DX Contest (a.w.).
Sept. 29-Oct. 1: VK-ZL DX Contest (phone).
October 5-8: VK-ZL DX Contest (a.w.).
October 13-15: VK-ZL DX Contest (phone).

President.—J. F. Pickles, VK4FF.
Secretary.—W. L. Stevens, VK4TB, Box 533J,
G.P.O., Brisbane.
Meeting Night.—Third Friday in each month at the
L.R.E. Rooms, Wickham St., Valley.
Divisional Sub-Editor.—F. H. Shannon, VK4SN,
Minden, via Rosewood.

President.—E. A. Barthler, VK5MD.
Secretary.—G. M. Bowen, VK5YU, Box 1284E,
O.P.O., Adelaide.
Meeting Night.—Second Tuesday of each month at
17 Waymouth St., Adelaide.
Divisional Sub-Editor.—W. W. Parsons, VK5PS,
483 Rapolandale, Henley Beach.

President.—R. W. S. Hugo, VK0EW.
Secretary W. K. Coxon, VK5AQ, 7 Howard St.,
Perth.
Meeting Place.—Paddy House, Cnr. St. George's
Ter and King St., Perth.
Meeting Night.—Third Tuesday of each month.
Divisional Sub-Editor.—Alec A. Smith, VK8AS,
75 Weston St., Carlisle, Western Australia.

President—J. Brown, VK7BJ
Secretary—R. D. O'May, VK7OM, Box #11B,
G.P.O., Hobart.
Meeting Night—First Wednesday of each month at
the Photographic Society's Rooms, 163 Liver-
pool St., Hobart.
Divisional Sub-Editor—S. Excell (VK7BJ), 77 Mollie
Street, Hobart, Tasmania.
Northern Zone Correspondent—R. H. Kilby, VK7RH,
5 Galigny Street, Launceston.

The Remembrance Day Contest, as indicated by the number of stations participating, was an unqualified success. To ensure that your Division has an opportunity of securing the much coveted trophy, all Members are urged to send in their logs duly signed and laid down in RULE 16, to their respective Divisional Councils for membership checking.

These logs are to be in the hands of the Contest Manager by 5th September, therefore your prompt action is needed.

ADDITIONS, ALTERATIONS, AND DELETIONS TO
AMATEUR CALL SIGNS—JULY, 1960

Additions

VK3QY—A. M. T. Moore, Flat 3, "Star La Mur",
 Cliff Brook, Bayside, Clovelly
 2ADU—J. W. London, 48 Princes Road, Blockton.
 2ADW—R. M. H. Jones, 31 Pitt St., Potts
 2AWE—R. M. H. Weston, "Dare Indica", Mac
 St., Blackheath, Sydney.
 VK3AFN—R. F. Woolley, 14 Breese St., Brunswick
 3AVD—J. F. Gillies, 123 School St., Shepparton
 3AVD—R. H. Jones, 13 May St., Warrack.
 VK4AS—R. R. Smith, 83 Emmerly Rd., Clonsfield,
 Brisbane
 4IM—J. D. Neelam, 2 Holman Lane, Kangaroo
 Point, Brisbane.
 4IS F—E. Naylor, Cr. Medcoe and Admon
 St., Woolloomooloo.
 4BQ—R. W. Rose, Cassowary St., Langreagh.
 4AHR—A. A. Hobbs, RT 110, R.A.A.F. Station,
 Darwin, N.T.
 VK7SR—"Army Signals Radio Club of Tasmania",
 c/o Chief Signal Officer, Tasmania Com-
 mand, Angelsea Barracks, Hobart
 VK8MT—M. Tye, Koon Daba, Port Moresby.
 8BQ—S. G. Selinger, 10000th Ave.,

Alterations:

VK8FE—12 Sera Street, Lane Cove.
 3F8—17 Short Street, Summer Hill.
 2JW—Park Street, Orange.
 3LY—Yallambi, 5th Avenue, North Richmond.
 3BY—Commercial Hotel, Bowring.
 2ADZ—Shire Engineer's Residence, Young St.,
 Grenfell.
 2AFC—Cr Faraday Road and Segers Avenue,
 Padstow, Sydney.
 2JH—131a Balmuir Road, Leichhardt.
 4JY—Canberra Crescent, East Lindfield.
 7AL—Roddam Road, Errol, Mount

VK3FB-3 Spray Street, Parkdale.
 3JT-14 Buss Street, East Hawthorn.
 3KN-Dr. Yer-Orrong and Barnard Rds., Toorak.
 3LT-5 Deasly Street, Sale.
 3TV-Lot 861 Sylvander St., North Balwyn.
 3VC-6 Fenwick Street, Ulston Hill.
 3VC-114 Canterbury Road, Frazee Vale.
 3AJE-Mom. Stn. Alexander Street, Belgrave.
 3AKN-Dr. Yer-Orrong and Barnard Rds., Toorak.
 3ALN-Government, Aerodrome, Mangalore.
 3ARU-4 C.A. Depot (R.A.A.O.C.), Mangalore.

VK4BB-Barolin Road, Bundoora.
 4BJ-c/o Wypens Radio Dept., Bourbong St., Bundoora.
 4EK-Strze Road, North Side, Mackay.
 4MA-High Street, North Mackay.
 4WD-"Eye Lyn," Paramount Terrace, Paramount.
 4GLA, Mornington, Brisbane.
 4ZZ-c/o, Golden Fleece Hotel, Dalley.

VK5AA-Myal Avenue, Murray Bridge.
 5BB-Section 741E, Hundred of Crystal Brook.
 5CN-523 West Beach Road, Richmond.
 5EX-Laford Street, McLaren Vale.
 5FY-c/o Mr. A. Y. Ferguson, Eight Street, Glenelg.

5YV-11a Giles Street, Crystal Brook.
 5YV-Lot 65, John Avenue, Magill.

VK6AA-88 Lennon Street, Wiluna.
 6AY-14 Canningham Street, Merredin.
 6BS-Zenobia Street, Kalbarra.
 6BY-45 Railway Road, Kalbarra, Perth.
 6CD-6 Woodrooy Street, Mt. Lawley.
 6DB-Myla Road, Maddington.

VK9KT-Samarai, Papua.

Deletions—
 VK3OK—Cancelled.
 3PI—Cancelled.
 3AWF—Cancelled.
 3AWW—Cancelled.
 VK3WJ—Cancelled.
 3LN—Cancelled.
 3AKN—Cancelled.
 3ARU—Cancelled.
 3AXC—Cancelled.
 44CP—Cancelled.
 4Y—Cancelled.
 4RS—Cancelled.
 VK3AA—Cancelled.
 3YH—Cancelled.
 VK7AO—Cancelled.
 7UT—Cancelled.

now operating under VK4RQ

FEDERAL QSL BUREAU

RAY JONES, VICRJ, MANAGER

Andre Ballest, FWA8A, who expected to be active from Wallis Island in July last, has become unexpected absentee. Firstly, portion of his gear which should have arrived from France several months ago, has so far failed to arrive; secondly, the only available transmitter—a A.W.A. job—required a 3.5 Mc crystal and the only ones available were on 7 Mc. However, Andre will soon be in possession of the necessary 10 metre crystal and can then get a start on the 7 Mc. band, pending the arrival of his own gear. Unfortunately the vessel which makes the run from New Hebrides to Wallis Island four times yearly is now held up in dry dock in Sydney, so it may yet be late September before Andre is heard on 7 Mc.

Squadron Leader Johnny Jones, VK3RG and J.J. Jarry, who expected to return to Australia by June last after an 18 months' sojourn with the R.C.O.P. at Iwakuni, Japan, does not now expect to be home for some time due to the trend of events adjacent to Japan.

Trev. of B.E.R. 193 fame, hands the palm to 7 Mc for current 1H. During July in the early morning, Eric looked at the following countries on that band: G, I, OE, OH, DK, U, A, J, J, A, I, H, B, I, R, I, C, F, H, A, S, I, Q, F, H, I, I, T, F, r, e, e, K, K, L, A, E, Y, G, V, P, D, L, G, A, I, P, R, 0, 0, Z, K, Z, V, I, P, K, C, and H. A wire amortment.

A repetition of the drill when making application for certificates and awards should not be amiss. W.A.C. and W.B.E. Awards are made only to financial members of the W.I.A. Stations making application for these Awards should submit them, accompanied by the cards, to the Secretary of their Division who will pass them to the Federal QSL Manager for scrutiny and return and the necessary recommendation to the I.A.R.U. or R.S.G.B. through the Secretary of Federal Executive. In the case of W.B.E. applications a money order for 2/6 sterling, payable to the R.S.G.B., London, must accompany each application. Separate fees are payable for each W.B.E. Award, i.e. phone and c.w. No fees are required in the case of W.A.C. applications.

Applications for the VK DX C.C. Award should be submitted direct to the Secretary, Federal Executive W.I.A., Box 2011W, Melbourne, and must be accompanied by the verifications, together with a list of the countries claimed, in alphabetical order.

Sufficient postage for the return of the cards must be enclosed and it is advisable to send a minimum of 10/6 cash to allow for any possible disputed countries. After a DX C.C. Award has been made, claims for additional countries should be submitted in time by the same method.

Claims for the A.R.R.L. W.A.S. Certificate must be submitted direct to the A.R.R.L. by the club post as the W.I.A. does NOT handle this Award in any way. The handling of claims for Awards entails considerable work and correspondence by your Divisional and Federal committees, whose time and energy is given gratuitously on your behalf, therefore it is incumbent on claimants to ensure that the applications are in order and follow the procedure outlined above.

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NEW SOUTH WALES

The monthly meeting of the Division was held at Seaside House, Gloucester Street, Sydney, at 7.45 p.m. on Friday, 16th July, at which over 150 members were present. Mr. H. Stewes, Chief Electrical Engineer of the Water Board and a Foundation Member of the W.I.A., gave a most interesting lecture on "Electricity in the Metropolitan Water Sewerage and Drainage Board." He was accompanied by Mr. Laurie Hughes. Slides and various pieces of equipment were put on show.

After Mr. Stewes' lecture, Mr. Hughes gave a most interesting description of the transmitting set up. Of particular interest was the application of the transmitter to industry, the highlights automatically by an unattended transmitter. He described the difficulties of fungus and dampness which were gradually being overcome. In conclusion he pointed out that most of the equipment was designed, developed, and engineered by the Water Board's radio staff which, while short of technicians, was endeavouring to cope with all requirements of the service.

Joe Reed moved a vote of thanks to Mr. Stewes and Mr. Hughes.

Agenda items from the Easter Convention (Federal) were then discussed and some items as were considered satisfactory were ratified. On a motion from the Hunter Branch, the nomination of Dr. Frank A. Cook for Secretary, life membership was put forward and discussed. The Chairman, Mr. J. H. Corbin, VK3YC, informed members that Council approved of the nomination. In rising to propose

ELECTRONIC

A & R

EQUIPMENT

In response to numerous requests for a more universal high tension transformer, we have re-designed our type PT1371-8. It is our belief that the new range of taps will meet the requirements of both "Hams" and "Sound Men" alike. The new PT1371-8 now features the following:—

Primary: 200, 220, 230, 240 volts; **Secondary:** 500, 600, 750, 850, 1,000 volts per side of C.T. at 300 Ma.

The price of this conservatively rated item is unchanged by the modification, and is obtainable at the old price of £6/8/1 including tax.

MAINS FLUCTUATION

A further A. & R. type is a must with many Hams—namely our AT1202-22 mains adjusting transformer. This item is tapped from 180 to 250v. in 10v. steps, and will continually handle a 500 V.A. load—ample for the total drain for any rig. The price of the AT1202-22 is £3/17/4 including tax. Also available are mains adjusting transformers rated at 100, 250, and 1,000 V.A.

All A. & R. Products are obtainable from:—

Wm. Willis & Co., 428 Bourke St., Melbourne (MU 2426); J. H. Magrath Pty. Ltd., 208 Lt. Lonsdale St., Melb. (C 3688)

A. & R. Electronic Equipment Co. Pty. Ltd.

378 ST. KILDA ROAD, MELBOURNE, S.C.I

Phones: MX 1159, MX 1150

the motion, Joe Reed, 2JW, gave an outline of Dr. Reed's achievements in radio science. Mr. Reed's motion was seconded, and carried unanimously.

In welcoming 13 new members, the Chairman stressed the desire of Council to see our membership at the 1,000 mark before 32nd July. The Chairman then appealed to all members to get their share to make the W.L.A. completely representative of S.W.

The resignation of Mr. Maurice Butler, VK6AN, through pressure of business, was accepted with regret and Maurice was thanked for his services. It accepting the position of Honorary General Secretary, the Chairman asked Mr. Dave's services, stated his job, but knowing Dave's abilities the position was assumed of a competent and thoroughly efficient executive for the future. The meeting closed at 10.30 p.m.

WESTERN SUBURBS

211A seems to enjoy working the locals from Ashfield 2A0D is still persevering with that full wave antenna and hoping for the elusive Ws to come back. 2A1RU's modulator sounds good; however, the new set, settling into the correct circuit. 2A0U is heard in regular contact with his son who lives about a few quarters of the globe. 21S 1M is heard with 2A4AF and 2A1RU. 2A1RU has had conditions. 2BN never fails! If he can hear he can work 'em on his full wave. 2BX still knock about 144 and 145 MHz. 2XK has had a nice haul from EP11B. 2XG has trouble with the meter voltage. Rex and Keith being close bandy chaps the rag quite often.

2XK still managing some DX but says conditions poor. 2XJ must be 2000 ft. 2XJ is a nice thing to hear on 20. 2XKC has not been heard so there must be great preparations going on in the new shack. How is that new rotary beam, Frank? 20K is heard in regular contact with his son who lives about a few quarters of the globe. 2XK has had conditions. 2BN never fails! If he can hear he can work 'em on his full wave. 2BX still knock about 144 and 145 MHz. 2XK has had a nice haul from EP11B. 2XG has trouble with the meter voltage. Rex and Keith being close bandy chaps the rag quite often.

Pl. Experimental Radio Society, Mitchell Street, Enfield (opp. Henley Park in Council Works Depot), hold meetings at the stormaid address each Thursday and are cordially invited to come along and join in. The Program will be 7.30 p.m. at Liverpool Road, Enfield, and the Secretary, Ted Whiting, VK2ACD.

NORTH COAST AND TABLELANDS

Congress to all Amateur active and listeners, especially 2PA, 2ZS and 2ARY for the wonderful job done during the flood on the North Coast. In the Newcastle district alone 50 people were rescued from the banks from the flood by the help of the radio and by radio for help. Full details of the flood emergency will be given in detail elsewhere.

Members active on 6 meters this month on the North Coast include 2GK, 2A0R, 2EY, 2IC, 2GI, 2WT, and 2EA. The 80 metre band has been improving slightly with plenty of DX about and there are plenty of newcomers on the band who have given 10, 15 and 19 away due to poor conditions. All the Coffs Harbour gang are now working 60. 2CD, Newcastle, has staged a comeback and a new 2XK, 2A0R, 2B1, 2B2, 2B3, 2B4, 2B5, 2B6, 2B7, 2B8, 2B9, 2C0, 2C1, 2C2, 2C3, 2C4, 2C5, 2C6, 2C7, 2C8, 2C9, 2D0, 2D1, 2D2, 2D3, 2D4, 2D5, 2D6, 2D7, 2D8, 2D9, 2E0, 2E1, 2E2, 2E3, 2E4, 2E5, 2E6, 2E7, 2E8, 2E9, 2F0, 2F1, 2F2, 2F3, 2F4, 2F5, 2F6, 2F7, 2F8, 2F9, 2G0, 2G1, 2G2, 2G3, 2G4, 2G5, 2G6, 2G7, 2G8, 2G9, 2H0, 2H1, 2H2, 2H3, 2H4, 2H5, 2H6, 2H7, 2H8, 2H9, 2I0, 2I1, 2I2, 2I3, 2I4, 2I5, 2I6, 2I7, 2I8, 2I9, 2J0, 2J1, 2J2, 2J3, 2J4, 2J5, 2J6, 2J7, 2J8, 2J9, 2K0, 2K1, 2K2, 2K3, 2K4, 2K5, 2K6, 2K7, 2K8, 2K9, 2L0, 2L1, 2L2, 2L3, 2L4, 2L5, 2L6, 2L7, 2L8, 2L9, 2M0, 2M1, 2M2, 2M3, 2M4, 2M5, 2M6, 2M7, 2M8, 2M9, 2N0, 2N1, 2N2, 2N3, 2N4, 2N5, 2N6, 2N7, 2N8, 2N9, 2O0, 2O1, 2O2, 2O3, 2O4, 2O5, 2O6, 2O7, 2O8, 2O9, 2P0, 2P1, 2P2, 2P3, 2P4, 2P5, 2P6, 2P7, 2P8, 2P9, 2Q0, 2Q1, 2Q2, 2Q3, 2Q4, 2Q5, 2Q6, 2Q7, 2Q8, 2Q9, 2R0, 2R1, 2R2, 2R3, 2R4, 2R5, 2R6, 2R7, 2R8, 2R9, 2S0, 2S1, 2S2, 2S3, 2S4, 2S5, 2S6, 2S7, 2S8, 2S9, 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OK with low power; Keith has acquired a G60 and wonders what to do with the 808. At last we have some news from the Warwick area. 4CK has been working Euxine on 40 and came up on 40 phone recently, but Len found conditions bad. No news of 4CH, must have gone down in the Condamine flood.

BRISBANE ZONE

Manager 4UX—4BG is recovering from his illness and is on the air again. Very good to see Bob taking part in the Sunday morning hook-up. 4AW was a GOB in the recent lucky dip and Claude wants to know if you want it. Arthur 4BY was a GOB on 407 and was modulators going round. 4YA a real old timer. Bill proves that once a Ham, always a Ham. He gave the game away in 1934, and is on again with as much enthusiasm as a brand new Ham.

4KH with the assistance of 4VJ and others, has at last got his beam up again. Bill has been off the air for about eight months. 4FK, if you ever get trouble with him ask Arthur. His methods are unorthodox, but they work. Heard on 20 metre phone. 4DA has moved to Brisbane and is looking for a 4000 footed landlady who will allow him to set up his rig. Errol told me the other day that if he takes Ham Radio to me much more he will be going on irrespective whether his landlady approves or not.

4YA has done with Command gear, but haven't heard Peter on yet. 4BT also has ideas on Command receivers. Was not talking to him long enough to find out, and being a lad of very few words (you say) forgot to ask him John is kept busy making chads for the lads. 4HA heard for five five times in many weeks on 3.5 phone the other night 4AB has recently been promoted and is rather worried as it could possibly mean a shift to the land of woe and moodes.

4FB has thawed out after his trip to Bond Island and is on 30 metres. 4EB has been transferred from Rocky to Brisbane and will be on the air again shortly, expect the whole day recently playing records with himself the only listener, and got paid for it. A monotonous job as Claude found out the next day.

The Country representative, 4CX, advises country members that they will receive all outstanding receipts and membership certificates in the near future. Contact Claude if you want any matters explained out for you. 40X's address: Ernest Street, Geysera.

SOUTH AUSTRALIA

The monthly general meeting of the VK3 Division for July was held at 17 Waymouth Street to a capacity house and the Vice-President (Warwick Parson, 5PS) was in the chair owing to the President (Edward Barber, 6MD) vacationing in VK3. The guest speaker for the night was Associate Member, Mr Williams, and he was assisted by Bob Mianell (5V7), Bob Barringer, and Hughie Gurr. Their subject was given on the notice card as "The Practical Side of V.H.F.", but actually it was a practical and theoretical discussion of the V.H.F. radio setup of the Electricity Trust of S.A.

The lecture was probably one of the most practically illustrated that we have had for some time, and the interest displayed by the members present was sufficient indication of its success. The volume of thanks duly proposed by 5DW was enthusiastically received by all present.

The details of the meeting from now on may become a little disappointed because as I was the acting Chairman and also the scribe it is a little difficult to remain coherent. The "chat" was elegantly draped in a made with a large rug, intended no doubt to assist in keeping the Chairman snug and warm. Oh yes! that's what you think, as a matter of fact the draping was only there to hide a series of atom or hydrogen bombs which exploded with monotonous regularity, thereby testing in the process, the composure and the morale of the dignified Chairman. Still, everybody enjoyed the whole fun, and after all it was the first time that the members could join in the discommodities of the scribe knowing that his mouth as well as his hands were tied up trying to maintain the dignity of his high office.

5JW seized the opportunity to have a shot at the scribe by asking the Chairman to draw the said scribe's attention to the last paragraph in the VK3 notes of the July issue of "A.B." The Chairman consented to do this, and after holding a consultation with himself was able to throw the right construction on the paragraph, much to the members' enjoyment, and when 5PS tried to explain as to how the misunderstanding might have occurred, the meeting broke down in uncontrollable mirth.

Among the visitors present were 5AR Peterborough, 3TW Mt Gambier, 4BL, 4FN, Pt Pirie, 5XL, Clare, 4VJ, 5RF, Renmark, J. Bassett, H. Turner, 4A, Adelaide, and last but not least, W. Williamson (ex PAWV). To all these gentlemen we extend our very cordial welcome and we hope

that they all enjoyed themselves and will honour us with another visit sometime, although, with a more serious Chairman, they won't get as many laughs.

As forecast in these notes recently, the meeting unanimously decided in favour of "Doc" Barber (3MD) being made an honorary life member of the VK3 Division as a slight acknowledgement of the splendid service he has rendered. Of the record, I am putting a little risk of putting this joker on the back, and while all this crowding business is finished with, perhaps I will be permitted to come out to the open and say just what I think. The acting Chairman closed the meeting a little later than usual after explaining the fuel, or should it be love, trick that the President had played, in talking him into the office of Vice-President and then carrying out to VK3 and leaving it to said Vice-President holding the bag, and what a bag.

Our Secretary, 5AL, has been confined to his bed with the "flu", but is said to be fully recovered at this time of writing. I can't vouch for this, but I was told that it rattled very rapidly when he heard that the monthly balance was out to the tune of a halfpenny. The Treasurer, 3TL, is another who is reported off the sick list and said to be doing quite well thank you. I still know laughter about aught Tom.

Quite a flurry and a flurry on 50 the other night when one or two stations called with each other. I didn't hear it myself, but my eyes told me that tremors were a little short for a few moments until the usual VK3 good fellowship asserted itself. One eastern station man who was attempting to pour oil on troubled waters nearly "copped the lot," although his well known ability to talk himself out of anything was certainly put to the test.

5BW is one of these quiet chaps to whom I put a lot of trust, and he is a big fellow Ham 1 and 2 way, and the number of chaps that Frank has helped with advice or practical assistance is high. The Ham is quite well known for his chaps, but they are also quite willing to advertise in the world how they were able to get "on and on" out of it trouble, usually to the technical detriment of so and so. Not Frank, however, the job is done with a minimum of noise, the best of workmanship, and the mere mention of thanks on the part of the recipient is enough to give Frank a bad attack of embarrassment. A true Ham, if I may be permitted to say so.

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PERSONALITIES

No news to hand from the Goldfields gang. EDX is heard regularly down here on 40 and 80 with a very nice signal and GOU seems to have the DC problem well licked up in Boulder. Well that's about the issue for this month fellows. Don't forget to let me have any scandal you can dig up and I'll do my best to air it for you in this column.

TASMANIA

Another case of the City Hams gone bad is TEL, now residing at that well known seaside resort of South Arm. Pressure of business has been the cause of silence, but he should be heard shortly. Believe Ted is growing fat and prosperous as the genial country storekeeper, so how about brushing

BILL haven't heard anything of JAM's proposed QRO, but perhaps that's because I don't listen at the right times. YDS read my comment to his football team--went to work on them and up they bob to topple the competition leaders, so in future I'll leave the sports items to the daffies. BILL also polibunging the contacts and removing several weights from the bug in preparation for the MD Contest; good hunting BILL. Better wind up now or I'll get myself maled up in the Hamama. So remember, the date of the second Friday in September is the 84th.

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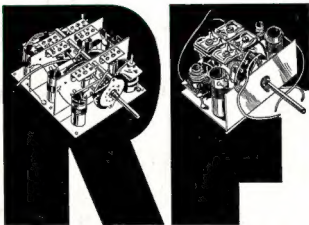
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★ K1 KIT

A Dual Wave Assembly incorporating permeability tuned Aerial and Oscillator Coils for B/C (550-1600 Kc.) and S/W (7-23 Mc.). Trimmers and Padder (fixed) Condensers fitted. Iron Core adjustment is made from above chassis (Trimmers from beneath). Suitable for "H" and A.W.A. gang. Measurements: 2½ in. long, 3½ in. wide, 1-7/8 in. high. Available for Converters 6J8, 6AR, ECH35, EK2, 1C6. "Oak" type Switch built in with 3 in. long by 2 in. shaft.

J. H. MAGRATH & CO.

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